

Serial No. 10/760,020
Preliminary Amendment

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What is claimed is:

1. (Previously Presented) A liquid treatment system, comprising:
 - a housing configured to be mounted at the end of a faucet;
 - a filter disposed within the housing to remove particulates from a flow of liquid through the housing;
 - an ultraviolet light source disposed within the housing to decontaminate the flow of liquid;
 - a hydro-generator disposed within the housing and configured to be rotated by the flow of liquid to generate power for the ultraviolet light source;
 - a nozzle and only one manifold disposed in the housing, the manifold comprising a first passageway configured to channel the flow of liquid to the filter, a second passageway configured to channel the flow of liquid from the filter to the ultraviolet light source and a nozzle keeper configured to engage the nozzle, the nozzle configured to channel the flow of liquid from the ultraviolet light source to the hydro-generator as an extruded stream of liquid to induce rotation.
2. (Original) The liquid treatment system of claim 1, further comprising a processor that is configured to energize the ultraviolet light source with power generated by the hydro-generator only when the rotational speed of the hydro-generator is within a determined range.
3. (Original) The liquid treatment system of claim 2, wherein the determined range is a range capable of initially energizing the ultraviolet light source within a desired range of thermionic temperature.
4. – 6. (Canceled)
7. (Previously Presented) The liquid treatment system of claim 6, wherein the hydro-generator includes a generator housing having a plurality of paddles mounted perpendicular to an outer surface of the generator housing and a centering shaft extending through the generator

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housing, wherein the generator housing is rotatable around the centering shaft in response to receipt by the paddles of the extruded stream of liquid.

8. (Original) The liquid treatment system of claim 1, wherein the hydro-generator comprises a rotor and a stator, the rotor is a permanent magnet that is coupled with the generator housing and the stator is non-rotatably mounted on the centering shaft.

9. (Original) The liquid treatment system of claim 2, further comprising a switch, wherein only the switch is coupled between hydro-generator and the UV light source, and the switch is configured to be enabled by the processor to directly supply power from the hydro-generator to the UV light source.

10. (Original) The liquid treatment system of claim 2, further comprising a switch and a ballast, wherein the switch is coupled between the hydro-generator and the ballast, and the ballast is coupled with the ultraviolet light source, wherein the switch is configured to be enabled by the processor to supply power from the hydro-generator to the ultraviolet light source.

11. (Original) The liquid treatment system of claim 1, wherein the filter comprises activated carbon.

12. – 32 (canceled)

33. (Original) A liquid treatment system, comprising:

- a manifold of only one-piece construction formed to include a first passageway;
- a filter configured to filter a flow of liquid provided through the first passageway;
- the manifold formed to include a second passageway configured to channel the flow of liquid that has been filtered away from the filter;

- an ultraviolet dosing system configured to directly receive the flow of liquid from the second passageway and decontaminate the flow of liquid;

- the manifold comprising a nozzle keeper to engage a nozzle mounted on the manifold, the nozzle configured to directly receive from the ultraviolet dosing system the

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flow of liquid that has been decontaminated and spray the flow of liquid as an extruded stream of liquid; and

a hydro-generator configured to rotate in response to contact with the extruded stream of liquid and generate electric power to supply the ultraviolet dosing system.

34. (Original) The liquid treatment system of claim 33, wherein the filter and the ultraviolet dosing system are positioned concentrically on opposite sides of the manifold.

35. (Original) The liquid treatment system of claim 33, wherein the hydro-generator comprises a centering shaft and a generator housing that is rotatable around the centering shaft.

36. (Original) The liquid treatment system of claim 35, wherein the housing includes a plurality of paddles extending outwardly substantially perpendicular to a surface of the housing, the paddles configured to be struck by the extruded stream of liquid to induce rotation.

37. (Original) The liquid treatment system of claim 33, wherein the filter comprises activated carbon.

38. – 45. (Canceled)

46. (Previously Presented) The liquid treatment system of claim 1, wherein the ultraviolet light source comprises a combination of up to about 25% neon gas and at least about 75% argon gas.

47. (Previously Presented) The liquid treatment system of claim 1, further comprising a switch mechanism configured to detachably mount the housing at the discharge end of the faucet and allow selection of one of a treated and an untreated flow of liquid from the housing.

48. (Previously Presented) The liquid treatment system of claim 1, wherein the housing is maintained in position at the discharge end of the faucet by only the faucet.

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49. (Previously Presented) The liquid treatment system of claim 1, further comprising a reactor vessel adapted to receive the ultraviolet light source, the reactor vessel comprises an inlet and an outlet both positioned at one end of the reactor vessel to couple with the manifold and the nozzle, respectively.

50. (Previously Presented) A liquid treatment system, comprising:
a housing configured to be mounted at the end of a faucet;
a filter disposed within the housing to remove particulates from a flow of liquid through the housing;

an ultraviolet light source disposed within the housing to decontaminate the flow of liquid, wherein the ultraviolet light source comprises up to about 25% neon gas and at least about 75% argon gas; and

a hydro-generator disposed within the housing and configured to be rotated by the flow of liquid to generate power for the ultraviolet light source.

51. (Previously Presented) The liquid treatment system of claim 50, wherein the neon gas is between about 5% and 15% and the remainder is argon gas.

52. (Previously Presented) The liquid treatment system of claim 50, wherein the neon gas is about 5% or less and the remainder is argon gas.

53. (New) The liquid treatment system of claim 50, further comprising a processor that is configured to energize the ultraviolet light source with power generated by the hydro-generator only when the rotational speed of the hydro-generator is within a determined range.

54. (New) The liquid treatment system of claim 53, further comprising a switch, wherein only the switch is coupled between hydro-generator and the ultraviolet light source, and the switch is configured to be enabled by the processor to directly supply power from the hydro-generator to the ultraviolet light source.

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55. (New) The liquid treatment system of claim 53, further comprising a switch and a ballast, wherein the switch is coupled between the hydro-generator and the ballast, and wherein the ballast is coupled with the ultraviolet light source, the switch is configured to be enabled by the processor to supply power from the hydro-generator to the ultraviolet light source.
56. (New) The liquid treatment system of claim 53, wherein the determined range is a range capable of initially energizing the ultraviolet light source within a desired range of thermionic temperature.
57. (New) The liquid treatment system of claim 50, further comprising a switch mechanism configured to detachably couple the housing with the end of the faucet and allow selection of one of a treated and an untreated flow of liquid from the housing.
58. (New) The liquid treatment system of claim 50, further comprising a processor configured to monitor the power generated by the hydro-generator, wherein the processor is configured to determine a flow rate of the flow of liquid through the housing as a function of the power generated.
59. (New) The liquid treatment system of claim 50, further comprising a processor configured to determine a rotational speed of the hydro-generator as a function of the power generated and energize the ultraviolet light source when the rotational speed of the hydro-generator is within a determined range.
60. (New) The liquid treatment system of claim 50, further comprising a processor and a filter, the processor configured to track usage of the filter and the ultraviolet light source as a function of the power generated.
61. (New) The liquid treatment system of claim 50, further comprising a display coupled with the housing, the display configured to display a system status indication.

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62. (New) The liquid treatment system of claim 50, wherein the hydro-generator includes a plurality of paddles extending outwardly substantially perpendicular to a surface of the hydro-generator, the paddles configured to be struck by the flow of liquid to induce rotation.

63. (New) The liquid treatment system of claim 50, further comprising a filter configured to filter the flow of liquid.

64. (New) A liquid treatment system, comprising:
a housing configured to be mounted at the end of a faucet;
a filter disposed within the housing to remove particulates from a flow of liquid through the housing;
a hydro-generator disposed within the housing and configured to be rotated by the flow of liquid to generate power; and
a nozzle and a single manifold disposed in the housing, the single manifold comprising a first passageway configured to channel the flow of liquid to the filter, a second passageway configured to channel the flow of liquid from the filter toward the nozzle and a nozzle keeper configured to engage the nozzle, the nozzle configured to channel the flow of liquid to the hydro-generator as an extruded stream of liquid to strike the hydro-generator and induce rotation.

65. (New) The liquid treatment system of claim 64, further comprising a display coupled with the housing, the display configured to display a system status indication.

66. (New) The liquid treatment system of claim 65, wherein the display is configured to be powered by the hydro-generator.

67. (New) The liquid treatment system of claim 64, wherein the hydro-generator comprises a rotor, a stator and a shaft, wherein the rotor is a permanent magnet that is coupled with the generator housing and the stator is non-rotatably mounted on the shaft.

68. (New) The liquid treatment system of claim 64, wherein the hydro-generator includes a generator housing having a plurality of paddles mounted perpendicular to an outer surface of the

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generator housing and a shaft extending through the generator housing, wherein the generator housing is rotatable around the shaft in response to receipt by the paddles of the extruded stream of liquid.

69. (New) The liquid treatment system of claim 64, further comprising a processor, wherein the processor is configured to be powered by the hydro-generator and is further configured to monitor the power of the hydro-generator.

70. (New) The liquid treatment system of claim 64, further comprising a processor, wherein the processor is configured to be powered by the hydro-generator and is further configured to monitor usage related parameters of the liquid treatment system.

71. (New) The liquid treatment system of claim 64, further comprising a processor and an ultraviolet light source, wherein the processor is configured to determine a rotational speed of the hydro-generator as a function of the power generated and energize the ultraviolet light source with the power when the rotational speed of the hydro-generator is within a determined range.

72. (New) The liquid treatment system of claim 64, further comprising an ultraviolet light source disposed within the housing to decontaminate the flow of liquid, wherein the hydro-generator is configured to generate power for the ultraviolet light source.

73. (New) A liquid treatment system, comprising:

- a manifold of only one-piece construction formed to include a first passageway;
- a filter configured to filter a flow of liquid provided through the first passageway;
- the manifold formed to include a second passageway configured to channel the flow of liquid that has been filtered away from the filter;

- wherein the manifold comprises a nozzle keeper to engage a nozzle mounted on the manifold, the nozzle configured to receive the flow of liquid that has been filtered and spray the flow of liquid as an extruded stream of liquid; and

- a hydro-generator configured to rotate in response to contact with the extruded stream of liquid to generate electric power.

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74. (New) The liquid treatment system of claim 73, further comprising a processor configured to be energized by the electric power, wherein the processor is further configured to monitor the power of the hydro-generator.
75. (New) The liquid treatment system of claim 73, further comprising a processor and a display, wherein the processor is configured to monitor an operational parameter of the liquid treatment system and drive the display.
76. (New) The liquid treatment system of claim 73, wherein the housing is configured to be mounted at the end of a faucet.
77. (New) The liquid treatment system of claim 73, wherein the hydro-generator includes a rotor and a stator, and wherein the rotor is rotatable in proximity to the stator to generate electric power.